

REMARKS

Status of the Claims

In the Final Office Action, claims 26, 34 and 35 were rejected. In this response, no claim has been amended or canceled. Claims 39-40 have been added. All amendments are fully supported by the originally filed application. In particular, support for claims 39 and 40 may be found in Specification, para. [0037-0038]. Thus, no new matter has been added.

Accordingly, claims 26, 34-35 and 39-40 remain pending.

Claim Rejections – 35 U.S.C. §103

Claims 26, 34 and 35 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lindoff et al. (U.S. 6,101,224, hereinafter “Lindoff”) in view of Vilcocq et al. (U.S. 2004/0041638, hereinafter “Vilcocq”) and Hasson (U.S. 2003/0123566, hereinafter “Hasson”). This rejection is respectfully traversed and reconsideration is respectfully requested.

In the Final Office Action, the Examiner asserted that “the most important aspect of the claimed invention is the fact that the coefficients of the pre-emphasis filter is adaptive rather than predetermined.” Applicants strongly disagree with such improper characterization of the claimed invention and respectfully request the Examiner to reconsider the rejection in light of the remarks below.

Claim 26 is directed to a communication device that includes, among other features, optimization criteria which are related to an input to a pre-emphasis filter and are related to an input to a voltage controlled oscillator of the fractional-N phase locked loop unit.

Vilcocq discloses a digital modulation synthesizer, comprising a pre-accentuation filter 18 which receives the frequency modulation signal F_{mod} at one input. See Vilcocq, FIG. 2, para. [0026]. The second input to the pre-accentuation filter 18 is connected to the output of the voltage controlled oscillator via an auxiliary loop comprising means 20

for demodulating the output signal S_{out} , an analog/digital converter 25, and a calculation unit 26. See *id.*, para. [0052].

Vilcocq does not teach or suggest “optimization criteria [that] are related to an input to said pre-emphasis filter and are related to an input to a voltage controlled oscillator of the fractional-N phase locked loop unit” as claimed. As the Examiner concedes, the pre-accentuation filter disclosed in Vilcocq is related to an output to a voltage controlled oscillator, rather than to an input to a voltage controlled oscillator. See Final Office Action, page 6, first paragraph.

Vilcocq proposes a pre-accentuation filter having a transfer function defined *judiciously* so that the determining coefficient depends on the open-loop gain of the PLL. See Vilcocq, para. [0013] (emphasis added). Specifically, the value of the determining coefficient is a function of a parameter of quality of the modulation of the output signal of the synthesizer. This parameter is preferably the phase error in the output signal when this signal is phase-modulated or the frequency error when this signal is frequency-modulated. See *id.* As such, the pre-accentuation filter has to be related to the output of a PLL in order to compensate for the quantization noise, including phase error or frequency error, introduced by the modulation process. See *id.*, para. [0005-0006]. This is contrary to the recitations of claim 26.

In Vilcocq, to have the pre-accentuation filter be related to the output of the PLL, rather than the input of the VCO, is not merely a matter of design choice, but dictated by the fact that the transfer function of the pre-accentuation filter is determined by the open-loop gain of the PLL. Therefore, the pre-accentuation filter related to the output to the PLL in Vilcocq is not and cannot reasonably be construed to be the optimization criteria related to an input to a voltage controlled oscillator of the fractional-N phase locked loop unit as claimed. Instead of teaching or suggesting the device as claimed, Vilcocq actually teaches away from the claimed device.

In sum, Vilcocq does not provide any teaching, suggestion, or motivation to indicate that the claimed recitations would be obvious to one skilled in the art at the time the invention as claimed was made. Therefore, claim 26 is allowable over Vilcocq.

Lindoff discloses an apparatus to generate a linearly modulated signal in a polar modulation system. See Lindoff, Abstract. Hasson discloses a transmitter including a

switching amplifier and a sigma-delta N-PSK modulator. See Hasson, Abstract. Neither Lindoff nor Hasson, either alone or in combination, teach or suggest optimization criteria which are related to an input to a pre-emphasis filter and are related to an input to a voltage controlled oscillator of the fractional-N phase locked loop unit. And there is no teaching, suggestion, or motivation to indicate that such feature would be obvious to one skilled in the art at the time the invention as claimed was made. Accordingly, claim 26 is allowable over Vilcocq even further in view of Lindoff and Hasson.

Claims 34-35 and 39-40 depend on claim 26, either directly or indirectly, thereby incorporating all recitations of claim 26. Therefore, claims 34-35 and 39-40 are also allowable over Vilcocq in view of Lindoff and Hasson.

Conclusion

For these reasons, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present paper, the Examiner is kindly requested to contact the undersigned at (503) 796-2997. If any fees are due in connection with filing this paper, the Commissioner is authorized to charge Deposit Account No. 500393.

Respectfully submitted,
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